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Presence of Athletic Trainers in Michigan High Schools

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Context: Each year an estimated 1.4 million sports related injuries occur annually to student-athletes at the high school level. It has been over 20 years since a systematic investigation into the presence of athletic trainers to treat these injuries in the state of Michigan has been conducted. Within the past 5 years in Michigan, licensure as well as several laws and regulations have been enacted for athletic trainers. **Purpose:** To investigate the prevalence of athletic trainers in secondary schools in Michigan. **Design:** Cross-sectional study. **Setting:** Questionnaires were given to all 400 athletic directors in attendance of the Michigan Interscholastic Athletic Administrators Association (MIAAA) state conference. **Participants:** Seventy-eight athletic directors from Michigan high schools. **Instrument:** A seven item questionnaire was developed and pilot tested. Prevalence of athletic training services, the extent of coverage, the funding source of the athletic training services provided, and general characteristics of the school (size and setting type) were all assessed. **Main Outcome measures:** Descriptive statistics such as frequencies and medians were used along with Kendall's tau for test of association for nonparametric data. **Results:** Seventy-seven percent of those sampled indicated some form of athletic training services, and services tended to be more extensive at larger schools. Additionally, most (63%) of the athletic training services were funded from contracts with sports medicine clinics/hospitals. Coverage was mainly for practice and events (75%) with these services ranging from 26-40 hours per week at 42% of the schools in the sample. **Conclusions:** There has been a dramatic increase in the frequency of athletic training services in the high school setting in the state, but the level of coverage may not be adequate for all student-athletes.

Key Words: *athletic training services, interscholastic athletes, administration*

Introduction

There are nearly 7.7 million individuals participating in sports at the high school level in the United States,¹ more than 18 times the number of National Collegiate Athletic Association (NCAA) student-athletes.² As a result, an estimated 1.4 million sports related injuries are sustained by high school student-athletes in a given year³ with football having the highest rates.⁴ Return to play time is quicker and there is reduced risk of reinjury when these injuries have immediate evaluations and appropriate medical care.⁵⁻⁷ Athletic trainers are the allied health professionals with explicit proficiency to assess and treat sports related injuries.⁸⁻¹⁰ The American Academy of Family Physicians, American Medical Association, and the American Academy of Pediatrics all endorse the utilization of a certified athletic trainer in the high school setting.¹¹

Recently, increased attention on the risk of concussions in the adolescent athlete has further illustrated the need for appropriate medical care for the high school student-athlete.¹² In response to this, the National Athletic Trainers' Association (NATA) has released an updated position statement on the management of sport concussions which emphasized the importance of an athletic trainer to facilitate the education of coaches, parents, and student-athletes on the symptoms and management of sport concussions.¹³ Most states have enacted legislation regarding concussions in youth and high school athletics. Michigan concussion laws went into effect for high school athletics

in 2010, mandating that all student-athletes showing symptoms of a concussion must be removed from competition and have medical clearance before returning to play.¹⁴ With the implementation of this new legislation in the state of Michigan directly aimed at the safety of high school student-athletes,¹⁴ the certified athletic trainer is the ideal professional to ensure these regulations are followed.¹³ However, another reality in the state of Michigan is the economic strain placed on school districts to maintain high quality education with decreasing budgets.¹⁵ For some high schools, a full time athletic trainer could be cost prohibitive, so they may only pay for the services of an athletic trainer for limited coverage. Unfortunately, many schools may not have any athletic training services whatsoever.

There has been an increase in the number of certified athletic trainers in the high school setting since the endorsement by other medical professional associations.¹⁶ In 1994, it was reported that 35% of high schools had some form of athletic training services.⁶ Seventeen years later, in 2011, the NATA estimated that nationally, 42% of high schools had the services of an athletic trainer.¹⁰ However, there has been a lack of empirical research that clearly explains this growth.¹⁶ A benchmark study trying to explain some of this growth was just released by Pryor, Casa, Vandermark, Stearns, Attanasio, Fontaine and Wager.¹⁷

By directly contacting the athletic directors of all public high schools in the nation (14,951) and getting responses from 8,509 (57%), the researchers sought to

determine the current athletic training services provided in this setting. The results from this work suggest that 70% of public secondary schools have access to some level of athletic training services in the United States.¹⁷ Despite some significant growth, it is likely that many high schools may not be able to ensure that the health care of their student-athletes is appropriate.^{18,19}

As expected, there is a substantial amount of variation in the level of athletic training services from state to state. These services could range from a fulltime employee of the school district to a part-time employee of the school district or a clinic/hospital. Other options include weekly clinic visits by an athletic trainer or possibly just having an athletic trainer present for event coverage. Wham, Saunders and Mensch¹⁹ surveyed athletic directors and athletic trainers from 166 high schools in South Carolina using the 132-item Appropriate Medical Care Assessment Tool (AMCAT) to examine the medical care provided to the student-athletes. They reported that 78% of high schools in South Carolina responded as having an athletic trainer, typically contracted through a source outside of the school district.¹⁹ DeWitt, Unruh and Seshadri¹⁸ in Arkansas used the Self-Appraisal Checklist for Health Supervision in Scholastic Athletic Programs instrument to examine if differences were seen in the level of medical coverage provided based on the size of the school. They reported that less than 50% of high schools offering football had access to the services of an athletic trainer.¹⁸ They also reported 88% of the essential event coverage components (organization, administration, and staffing; facilities and equipment; event coverage; and education), as defined by the American Academy of Pediatrics, were not being met.¹⁸

As previously mentioned, other states have recently evaluated the athletic training coverage at the high school level;^{4,19,18} however, it has been over 20 years since a systematic investigation into the presence of athletic trainers at the high school setting in the state of Michigan has been conducted. In 1992, Lindaman²⁰ surveyed all high schools in the state (711 in 1989) to assess the level of medical coverage at this level. He found that 41% of high schools reported having an athletic trainer available for at least one sport.²⁰ However, his study was conducted prior to licensure of athletic trainers in Michigan, and only 70% of these individuals were BOC certified. It should also be noted that 38% of these athletic trainers were providing services on a volunteer basis.

Since 1992, athletic training in Michigan has evolved. The Michigan Legislature enacted licensure for Athletic Trainers in 2011. Very little descriptive data exists demonstrating the current landscape of athletic training in Michigan. The previously mentioned benchmark study¹⁷ suggests that 68% of Michigan high schools have some level of athletic training services, but this study does not address the funding source for athletic training services or the presence of a designated

athletic training room. The purpose of our study was to investigate the prevalence, extent of coverage, and funding sources of athletic training services in Michigan secondary schools. Additionally, we examined relationships based on the characteristics of the school (school classification, presence of an athletic training room, funding sources for athletic training services, and number of hours athletic training services are provided).

METHODS

Participants

Participants were current athletic directors from high schools across the state of Michigan. Data were collected at the Michigan Interscholastic Athletic Administrators Association (MIAAAA) state conference located in Acme, Michigan, March 14 – 18, 2014, at the Grand Traverse Resort and Spa. There were 400 athletic directors attending this conference of the 505 eligible athletic directors across the state (George Lovich, Executive Director of MIAAAA, e-mail communication, September 22, 2014). The Human Subjects IRB at Western Michigan University approved the study for exempted review. This sampling technique was one of convenience that provided relatively easy access to a large proportion of the state's athletic administrators who are responsible for structuring their school's athletic health care system. It also allowed for access to this data in an anonymous, non-invasive manner.

Instrumentation

To determine the presence of athletic trainers at high schools within the state of Michigan, a seven item questionnaire was created by the researchers. The questionnaire was then reviewed for clarity and content by an athletic trainer who has been a liaison to the MIAAAA for over 10 years. It was also reviewed by an athletic director with over 15 years of experience. Due to the factual nature of the data being collected, an analysis of construct validity was not conducted. Confirmation of the data provided was not conducted since participants were the primary administrators of their athletic programs, as well as to maintain anonymity. The first four questions of the questionnaire were demographic in nature, regarding the size of school, setting of school, presence of an athletic training room and whether or not the high school utilized the services of an athletic trainer. All participants were asked to answer these questions. If an athletic director had hired or used athletic training services then they answered the last three questions that asked about funding for the athletic training services, what type of athletic training services were received and average number of hours worked by the athletic trainer. The specific questions can be seen in Figure 1. All of the responses were categorical, with two of the seven questions being binary (yes or no) in nature. For the 2013-14 school year, the high school classification was determined by the number of students according to the Michigan High School Athletic Association (MHSA).

FIGURE 1. Questionnaire Completed by Athletic Directors from Secondary Schools in Michigan

Please check the box associated with your answer.

- What is the class of your school?
 - ☐ A
 - ☐ B
 - ☐ C
 - ☐ D
- Which of the following best describes your high school?
 - ☐ Urban
 - ☐ Suburban
 - ☐ Rural
- Does your school have a dedicated athletic training facility/room?
 - ☐ Yes
 - ☐ No
- Does your athletic program utilize the services of an athletic trainer?
 - ☐ Yes
 - ☐ No
- How do you fund the athletic training services?
 - ☐ Employed by school district
 - ☐ Contract with area sports medicine clinic/hospital
 - ☐ Contract with local University/College
 - ☐ Donated by area sports medicine clinic/hospital
 - ☐ Other _____
- Which of the following best describes the coverage of your athletic training services?
 - ☐ Athletic events only
 - ☐ Team practice and athletic event coverage
 - ☐ Regularly scheduled injury clinics
 - ☐ Other _____
- On average, how many hours per week do you have athletic training services?
 - ☐ Less than ten
 - ☐ 11-25
 - ☐ 26-40
 - ☐ 40+

Procedures

All athletic directors that attended this conference received an information packet at registration that included the study questionnaire. Contact information for the researchers was provided on the instrument so participants could address any questions regarding the study at any time. Participants were asked to return the anonymous questionnaire to the Michigan Athletic Trainers' Society (MATs) information booth. Instructions on the questionnaire indicated that implied consent was given when the participant returned the completed questionnaire to the booth. Because the data collection took place at the MIAAA state conference and the completed questionnaires were delivered to the MATs information booth; support documentation and approval was obtained from the MIAAA and MATs board for this research. There was a representative from the MATs organization at the booth to collect the questionnaires. This individual was a member of the data collection team for this research and therefore was knowledgeable regarding all methodological procedures. The research assistant was not a part of the data analysis phase of the project; therefore the anonymity of the respondent and his/her school was retained throughout the study.

Statistical Analysis

Data were collected and entered into the SPSS version 21 software for analyses. Descriptive statistics, specifically, frequencies and medians, were found for each question of the questionnaire instrument. Due to the fact that the data are categorical, nonparametric analyses were used. Kendall's tau-b (τ_b) tests of associations were conducted for all possible two variable combinations. Alpha was set to 0.05 as a level of significance for all analyses in this study.

Results

Seventy-eight of the 400 registered attendees completed the survey resulting in a 20% response rate. The classification in this sample represented 44% in Class A, 25% Class B, 21% Class C and 12% Class D. Furthermore, 20% of the schools were self-identified as urban, 55% as suburban and 25% as rural as seen in Table 1, which is representative of the population of schools in the state.²¹

TABLE 1. High Schools with Athletic Training Services and Athletic Training Rooms by Classification and Setting

		Number of high schools having athletic training services	Number of high schools having an athletic training room
School Classification	A (n=34)	32	32
	B (n=19)	14	14
	C (n=16)	12	10
	D (n=9)	2	1
School Setting	Urban (n=16)	12	12
	Suburban (n=35)	33	29
	Rural (n=27)	15	16

*A (over 893 students), B (429-892 students), C (207-428 students), D (under 206 students)

Sixty of the seventy-eight high schools (77%) participating in the study had some form of athletic training services. Of these seventy-eight high schools, 73% (57/78) had a dedicated space as an athletic training room. Most of the athletic training services 63% (37/59) were provided through funding from contracts with sports medicine clinics and hospitals. The other funding sources included school districts 22% (13/59) or contracts with a local university 7% (4/59). The remaining 8% (5/59) had various funding sources including athletic boosters or donation from a local hospital. The vast majority of schools, 75% (45/60) had athletic training services for practice and events. Most schools reported athletic training services between 26-40 hours per week (42%) with the next most common time allotment of 11-25 hours per week (37%).

Less commonly reported was athletic training services provided less than 10 hours per week (14%) or greater than 40 hours per week (7%).

Over three-quarters (76.7%) of the larger schools in this study, specifically class A or B, had some form of athletic training services. Of the 45 high schools that had athletic training services for practices and events, 62% (28/45) were funded by contracts with clinics. Among the 45 class A and B high schools indicating that athletic training services were provided, 53% reported securing 26-40 hours/week and 38% reported 11-25 hours/week for these services.

Data analysis indicated several significant correlations: (1) between whether or not the high school had a dedicated space as an athletic training room and if the school had some form of athletic training services ($\tau_b = .697, p < .001$) and (2) between the school classification and whether or not the school utilized an athletic trainer ($\tau_b = .408, p < .001$) or (3) an athletic training room ($\tau_b = .486, p < .001$). When analyzing only the data from schools that had athletic training services, there were three significantly negative relationships between variables: (1) the number of hours worked per week and whether or not an athletic training room was present ($\tau_b = -.399, p = .001$), (2) the number of hours worked and the school classification ($\tau_b = -.352, p = .002$), and (3) the number of hours worked and the funding source for the athletic trainer ($\tau_b = -.252, p = .033$). The relationship between the number of hours worked per week was inversely proportional to the presence of an athletic training room. In other words, as the number of hours worked per week increased so did the likelihood of having an athletic training room, however there was only a moderate relationship. Again, the relationship between the number of hours worked per week and the school classification had a moderately negative relationship suggesting that as the classification of the school decreased (i.e. a smaller size school) there was less hours of athletic training services per week. And finally, the relationship between the number of hours worked per week and the funding source were statistically related however the magnitude of this relationship was weak.

Discussion

The purpose of this study was to investigate the prevalence of athletic trainers in secondary schools in the state of Michigan. Specifically, to examine not only the frequency, but also the extent of coverage, the funding source of the athletic training services provided, and what relationships exist based on the characteristics of the schools. Regretfully many of the high school athletic administrators declined our invitation to participate in this study. Of the 505 qualified athletic administrators within the Michigan Interscholastic Athletic Administrators Association (MIAAAA), 400 were in attendance during the data collection opportunity. Of those in attendance, 78 completed the research questionnaire. Therefore approximately 15% of Michigan

high schools within the association provided information upon which results are drawn.

A major finding of this work was that seventy-seven percent of the high schools in this sample had some form of athletic training services. This is slightly higher than Pryor et al¹⁷ found in the state as having 68% and even higher than the national average of 70%. While this percentage is encouraging, caution should be taken as it is not an indicator of the sufficiency of coverage, just the frequency of schools utilizing an athletic trainer to some degree. While results from this research indicate continued growth in athletic training services within Michigan's high school athletics, our sample size reflects a small proportion of the total number of schools. Therefore an alternative explanation for the discrepancy would be response bias as athletic directors without athletic training services may be less likely to respond to our questionnaire.²²

In examining the extent of the coverage by an athletic trainer, larger schools tended to have more hours of athletic training coverage than the smaller schools as seen by the moderately negative correlation ($\tau_b = -0.352$). In this sample, all of the class A schools ($n = 32$) utilized athletic training services at least 11 hours per week. Furthermore, the class A schools were the only school size that indicated they had athletic training services for more than 40 hours per week. In contrast, the class C and D schools had less than 25 hours per week of athletic training services (69%, $n = 9$). While not particularly surprising, it does suggest that student-athletes at smaller schools may be less likely to have athletic training services available, despite the fact that they are participating in the same sports as the larger schools.⁷ Recent results from Pryor et al¹⁷ and others support that the issue of insufficient medical coverage is not unique to Michigan.^{8,11}

The majority of schools within our sample reported utilizing athletic training services (75%) for practice and events, not just for events only. Yet, only 37% of the respondents in the current sample had athletic training services for greater than 26 hours per week. This raises the question of what would be considered sufficient coverage. Since high school athletic programs often have more than 26 hours per week of practices and events taking place; this may point to a major deficiency in the medical supervision of student-athletes participating at the high school level.^{23,24} A nationwide study of secondary school coverage by athletic trainers suggested that athletic trainers are generally limited by time in their ability to perform all the clinical tasks within their scope of practice²⁵ despite the majority of athletic trainers working over 20 hours per week.

Most of the athletic training services (63%) were provided through funding from contracts with sports medicine clinics and hospitals whereas only 22% of those sampled were employed directly from the school district.

This differs considerably from findings of Volovich McLeod et al²⁵ that a majority of high school athletic trainers were employed directly by the school district (47%). Their study was done on a nation-wide sample, and therefore included states with a tradition of employing athletic trainers at the high school level. Our research appears to indicate that this may not be the case in Michigan. Many of the schools located near urban areas may be able to utilize the resources of local sports medicine clinics and hospitals, however this resource may be less available in more rural areas.²⁴ Many health care institutions also utilize contracts for athletic training services as a form of community service or marketing, which may reduce the cost of having athletic training services for the school.

Seventy-three percent of the high schools in this sample had a dedicated space that served as an athletic training room. There was a strong positive relationship between the prevalence of the athletic training room and if the high school had athletic training services ($\tau_b = .697$). However, the size of the high school and a dedicated athletic training space only had a moderately positive relationship ($\tau_b = .486$) suggesting that the smaller high schools have an athletic training room but may not have the funding to provide athletic training services to their student-athletes. As suggested by Almquist et al²³ athletes need to be assessed and treated in a designated area that is clean and appropriate for these purposes only.

Limitations

As with all studies, certain limitations should be noted. Data collection was restricted to those athletic directors who attended the MIAAA annual meeting and furthermore only those athletic directors who chose to complete the questionnaire from one request to participate, with no follow up round of data collection. Therefore the sample size was relatively small, yet acceptable for survey research (20%).^{26,27} Without opportunity for follow-up no analysis to compare results between respondents and non-respondents was possible. Readers are therefore cautioned to read these conclusions with appropriate care.

Another limitation could be that athletic directors are not aware of the specific number of hours of athletic training services. Also, participants were asked to clarify 'other' responses when indicating the funding source of athletic training services provided to their schools but only 1 of the 4 respondents completed this open ended response stating that the athletic boosters were the funders. Therefore we do not know if some schools have developed a creative solution outside the traditional models of financial support for athletic training services, or if perhaps participants did not fully understand the question. This could also point to an area of further study.

Implications and Future Research

Other findings of the current research warrant further study, primarily investigating what type of medical coverage schools without athletic training services are utilizing. Consequently, determining how schools that lack athletic training services are staying compliant with recent state legislation for the health and safety of their student-athletes. Similar survey research could be conducted to address specific regulations and implications of coverage of high school student-athletes in each state. As previously stated, further information on the funding sources of athletic training services would also help to identify barriers and solutions to financial support for athletic training services.

Conclusions & Clinical Implications

This study is the first in over 20 years to investigate the delivery of athletic training services specifically in the state of Michigan, and provides an indication of the delivery of athletic training services to a highly underrepresented population, the high school student-athlete. This research suggests that there may have been an increase in athletic training services at the high school level within the state of Michigan during this time. However this research does suggest that within the state, access to athletic training services may be limited and therefore it is reasonable to have concern regarding the quality of medical supervision available to the student-athletes. This study suggests there are some areas of deficiency within the state, namely that many smaller schools may be going without adequate coverage, unless balanced by some other means. While this research accessed a small convenience sample of Michigan high schools, it offers a reference that has been absent within the literature for many years. During the intervening time, there have been many cultural changes and perhaps a heightened sensitivity toward the welfare of the student-athlete during athletic participation. High school athletic administrators and athletic trainers are encouraged to utilize the results of this research to examine the level of athletic training service and/or athletic health care that is offered to their student-athletes.

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